

Guide to: Health Risks of Working in a Cold Environment

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The effects of being exposed to cold temperatures include:



- Dehydration
- Numbness
- Shivering
- Frostbite
- Immersion foot
- Hypothermia

The human body core temperature is 37°C.

Unconsciousness can occur at 31°C.

Death can occur below 27°C.

Control the Risk, Protect Your Workers

For people working on construction sites, the health and safety issues that are faced daily are already relatively high. During the winter months, these risks rise as the temperature plummets.

Knowing the risks and understanding how they can be controlled is the job of both the employer and employee or contractor.



By being exposed to cold temperatures for extended periods of time, workers can experience general discomfort, increased strain on muscles, decreased performance and concentration levels, and an increase in cold-related diseases and injuries.

When the body's core temperature drops below 35°C it is defined as hypothermia, which, along with frostbite, is one of the more extreme dangers of prolonged work in cold environments.

In the UK, the legal minimum temperature requirement for indoor workers is 16°C.

As yet, there is no minimum requirement for outdoor workers.

Materials are protected, but workers aren't!

The National House Building Council (NHBC) has published minimum temperature guidelines to protect materials on site e.g. mortar should not be used below 2 degrees.

There are no such guidelines for workers. UCATT is lobbying for change.

Physical Risks from Cold Temperatures	Disease Risks Associated with Cold Temperatures
Heart attacks: low temperatures increase blood pressure, thereby placing more strain on the heart	Cold weather causes less blood to be supplied to the extremities to preserve body heat around the major organs. This reduction means that there are less white blood cells available to fight disease which leaves the body more susceptible to winter illnesses such as: <ul style="list-style-type: none"> • Cold and flu • Sore throat • Norovirus • Asthma
Frostbite: blood flow slows to the extremities if losing too much heat which can lead to ice crystals forming and killing cells inside the body	
Hypothermia: potentially fatal if the body's core temperature falls below 31°C	
Immersion foot: feet are exposed to wet and cold temperatures for a prolonged period of time, so the body constricts the blood vessels to shut down circulation in the feet	

What are the legal requirements?

Currently, the UK has no legal minimum or maximum temperature for working outside.

The Union of Construction, Allied Trades and Technicians (UCATT) is working hard to introduce extreme weather health and safety guidelines for construction workers. But as yet, only the Management of Health and Safety at Work Regulations 1999 and the Construction (Design and Management) Regulations 2007 outline any kind of minimum requirement.

1. Management of Health and Safety at Work Regulations 1999:

All work environments must have a risk assessment carried out, to include that of working in low temperatures. Once the site has been assessed, measures to minimise those risks identified, must be put in place to protect the lives of site workers.

2. Construction (Design and Management) Regulations 2007:

Regulation 43 raises the issue of working in extreme temperatures - (2) *Every place of work outdoors shall, where necessary to ensure the health and safety of persons at work there, be so arranged that, so far as is reasonably practicable and having regard to the purpose for which that place is used and any protective clothing or work equipment provided for the use of any person at work there, it provides protection from adverse weather.*

The body loses 25–30 times more heat when in contact with cold, wet objects compared with dry conditions.

Protect Yourself:

- Drink warming fluids regularly such as soup
- Caffeinated drinks should be limited as they can cause dehydration
- Avoid alcohol as it impairs the body’s ability to regulate temperature

Remember:

1. Know the health risks
2. Learn to recognise the early symptoms
3. Be prepared with the right equipment, clothing & nutrition

How can RVT Group help?

RVT’s free site assessments quickly identify what temperature control solutions are needed, and suggest a tailored solution for your work environment.

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Protecting Site Workers

Step One:

Carry out a risk assessment. HSE guidelines explain that personal and environmental factors should be considered.

Personal Factors	Environmental Factors
The level of activity	Sunlight
Amount and type of clothing to be worn	Wind speed creating the chill factor
Duration of exposure	Rain, ice and snow

Step Two:

Ascertain the most effective protective measures to minimise the impact of working in cold environments.

1. Could the work be delayed and undertaken at a warmer time of year instead?

If no delay is possible, site employers and managers should ensure:

1. Appropriate protective equipment is issued
2. Frequent indoor rest breaks are permitted

Additional measures for site workers:

1. Eat small to moderate size meals regularly
2. Consume food and drinks at room temperature or warmer
3. Wear clothing in multiple layers to retain heat better
4. Wear a polyester or polypropylene thermal base layer to keep skin dryer
5. Outer layer should be waterproof to ensure under layers remain dry
6. Wear thermal socks and a thin nylon or silk liner to insulate feet fully
7. Wear a wool hat under hard hats to reduce excessive heat loss
8. Gloves should be worn below 4°C for light work and below -7°C for moderate work

Specialist equipment to minimise the impact of working in cold environments

Alongside the use of proper engineering controls, safe work practices, and personal protective equipment, specialist heating equipment should be used. Equipment such as static and mobile oil-fired heaters, and electric fan heaters, provide dependable temporary heating and humidity control that significantly reduces the health risk to site personnel.